

original book, perhaps into a sixth. As to the need of such an index there cannot be two opinions. If, however, a fuller classified catalogue, such as is proposed by Mr. Garnett, be thought necessary, would it not be better to make it in the form of a series of indexes of separate subjects? The day for great encyclopædic works is nearly past, and as the astronomer cares little for the papers of the zoologist, and would find them only in his way, so both the zoologist and the astronomer would wish to have his own subject in a distinct volume.

This leads me to the chief point of this letter, which is to draw attention to the work that is already being done. I have received a letter from Prof. Holden, of the United States Naval Observa-

tory, in which he announces to me, as Secretary of the Index Society, his intention of making an index to all the entries referring to astronomy in the Catalogue of Scientific Papers, and also informs me that Prof. Abbe, of the United States Signal Service and Weather Bureau, has a complete card catalogue of the meteorological entries in the Royal Society Catalogue. Probably other workers have done the same for other subjects. This is, I think, the best use to make of the Catalogue of Scientific Papers, which is of immense value, in the first place as a catalogue of authors, and secondly, as a collection of authentic documents from which a series of subject-indexes may be drawn.

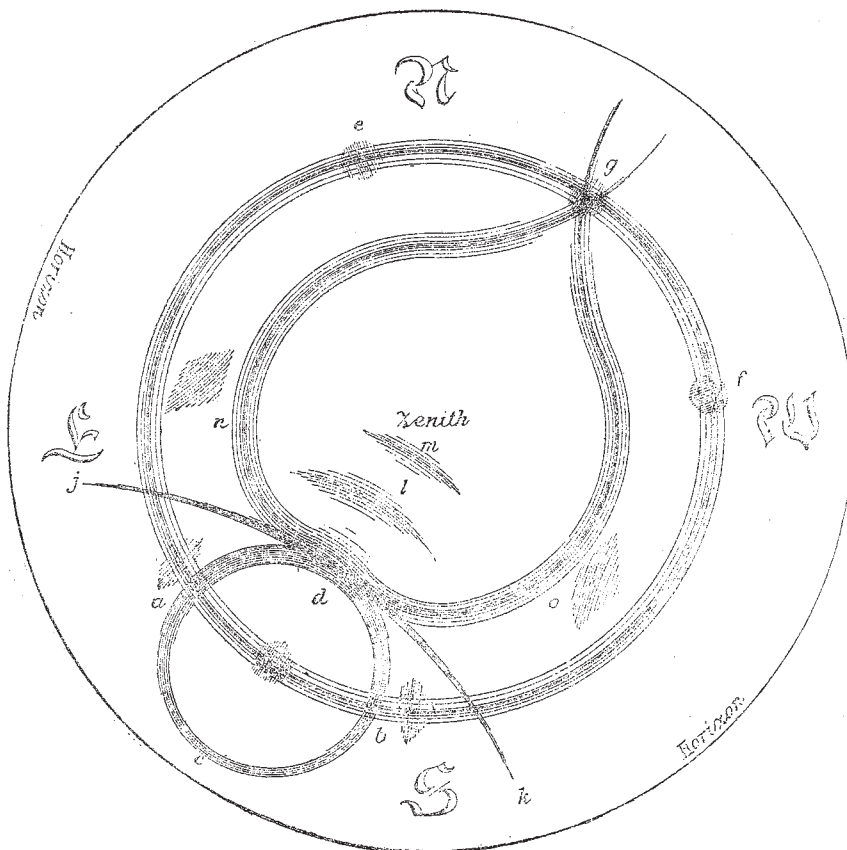
Society of Arts, October 28

HENRY B. WHEATLEY

Solar Halo

I INCLOSE a sketch of a remarkable solar halo and parhelia which I observed here on the 22nd ult. As I happened to have facilities at hand, I was enabled to take the dimensions and position of the various features of the phenomenon with sufficient accuracy. These appearances were first seen by me at 9.30 A.M., and continued nearly constant in brilliancy till about 10 A.M., when they gradually faded, and at 10.30 hardly anything was visible except the outer ring, *abefg*, which continued till 1 P.M. At 9.45 the inclosed sketch was made and the measurements taken. The sun had then an altitude of about 30°,

and was very misty and indistinct. It was surrounded by an ordinary solar halo of about 45° diameter; and through the sun passed another perfectly unbroken circle whose centre was exactly at the zenith. This circle had no colour and was similar in character to the ordinary concentric solar halo; its angular diameter was 120°; concentric with this was another circle of 78° diameter. This inner circle was not quite perfect at the point where the circle, *abcd*, touched it; it was slightly distorted, and through the same point (*d*) passed a portion of another circle of larger radius, *jk*. The junction of these three circles formed a beautiful spectrum, and was the most brilliant



part of the whole phenomenon. The inner circle was also imperfect on the side opposite the sun, when it branched off in two opposite curved tails, which, crossing the outer circle at the same spot, *g*, formed a mock sun. Two other mock suns were to be seen at *e* and *f*, 50° to each side of *g*. These three mock suns were all colourless, but at *a* and *b*, not on the concentric halo, but about 2° outside it, were two beautifully coloured mock suns, each being a perfect spectrum.

Finally, two portions of coloured circles were seen at *l* and *m*, with the concave side towards the sun, and two others at *n* and *o*, with their convex sides towards the sun, but in every case (both of circles and mock suns, *a* and *b*) the red colour was nearest the sun and the blue farthest from it.

I may mention, to give an idea of the brilliancy of the phenomenon, that many persons mistook one or other of the coloured bands for rainbows, and in one case one of the mock suns was supposed to be the sun itself (the sun happening to be hid from the observer by some adjacent buildings).

Dublin, October 11

HOWARD GRUBB

Karl Friedrich Mohr

In your notice on the late Karl Friedrich Mohr there is no mention made of one of his most remarkable works, "Die Geschichte der Erde," the first edition of which appeared in 1866. In it he takes up what he considers entirely new ground

and certain of his chapters are in the highest degree interesting. His chapter on the origin of coal is perhaps more interesting than any other, and is full of suggestive reasoning. I have not seen the work cited in any of our treatises on geology, and yet the opinions of such an eminent chemist must have some weight in the treatment of problems wherein chemistry alone can furnish a satisfactory solution.

J. P. O'REILLY

Dublin, October 22

Suicide of Scorpions

THE self-destruction of the scorpion when hard-pressed is unquestionable. I have on several occasions invited sceptics to witness the tragedy (!) in this part of Europe.

The scorpion we frequently meet with in and about "Sierra Morena" under stones and in crevices, is a large light-brown species often more than two inches from head to sting.

Having procured one I have placed it in a circle of glowing charcoal embers a foot or so in diameter; after vain attempts to get away it raises its tail over its back, pierces its head with its sting and dies, precisely in the way described by Dr. Thomson (*NATURE*, vol. xx. p. 577).

F. GILLMAN

Provincia Jaen, Linares, Spain, October 20

Superficial Earthquakes

CAN any correspondent oblige me with an explanation of the following facts? The earthquake which took place at Virginia City some time ago was not felt by the workmen in the mines. Some years ago a much more violent earthquake shook the town, breaking chimneys, overthrowing houses, and so on. But it was hardly to be noticed in the mines; indeed, not at all in the deeper shafts.

E. BURKE, Jun.

October 16

Coloured Lightning

ABOUT 4 P.M. to-day we had a pretty severe thunderstorm, accompanied by heavy rain, and the entire heavens were overcast by one unbroken cloud; three or four flashes of lightning were of a distinct blue colour, and then followed a flash of beautiful rose colour, succeeded by more flashes of blue lightning. Will some of your correspondents explain the cause of change of colour? and oblige

A. CONSTANT READER

Welland, Ontario, Canada, September 28

"MEMORIA."—The correspondent who signs herself thus must send her name if she wishes her letter to be inserted.

OUR ASTRONOMICAL COLUMN

THE SATELLITES MIMAS AND HYPERION.—The following are approximate times of the greatest western elongations of *Mimas* during the first week in November:—

	h.	m.		h.	m.
Nov. 1 ...	14	24	G.M.T.	Nov. 4 ...	10 15
" 2 ...	13	1	"	" 5 ...	8 52
" 3 ...	11	38	"	" 6 ...	7 29

Observations of *Hyperion* during the present opposition are required before a reliable ephemeris of this satellite can be furnished. The true motion of the peri-saturnium is yet doubtful, unless Prof. Asaph Hall has been able to decide upon it from later observations than have been published. As we have stated before, Mr. Marth some years since conjectured that it might be as great as $+75^\circ$ annually, and this rate of motion accords with Bond's determination of the place of the peri-saturnium in 1848 and Hall's results from Mr. Lassell's observations in 1852, and his own in 1875. So far as we know the Washington measures of 1878 are not yet published; probably they may throw more light upon the subject.

ANUARIO DEL OBSERVATORIO DE MADRID.—The seventeenth volume of this compilation (for 1879) reaches us late in the year. It is one of those useful compendiums of which the *Annuaire du Bureau des Longitudes* is

probably the oldest, and may be taken as the type. Astronomical phenomena and details occupy a considerable space, and the volume is therefore fitly noticed in this column, but there is a great amount of miscellaneous information, geographical, meteorological, physical, and otherwise, which will recommend it to a larger class of readers. We remark some few points to which exception might be taken on the score of want of accuracy or completeness; thus the independent discovery of *Hyperion* by Mr. Lassell is not recorded, and the number of Uranian satellites is set down as eight, though four are queried with good reason. The discovery of Tuttle's comet is dated in 1858, no mention being made of its appearance in 1790. It is doubtless through a misprint that Encke's comet is stated to have appeared in 1695. Many of the miscellaneous tables are very full, as, for example, those of the altitudes of mountains in all parts of the world, the length of rivers, and the meteorological conditions in various parts of the peninsula, and as regards Spanish science, &c., the volume is no doubt to be considered authoritative. There are many who have occasion to consult works of this kind, who may like to have their attention directed to the present publication of the Royal Observatory at Madrid.

A NEW PRIVATE OBSERVATORY.—Observatories erected, equipped, and maintained in activity by private individuals are numerous in this country, and, as will appear from Prof. Holden's recent report, there are many of them in the United States; but the number of known observatories of this class upon the continent of Europe is not great, and the more interest therefore attaches to the addition of a new one to the list. Dr. Jedrzejewicz gives some account of an observatory he has constructed at Plóńsk, about 37 miles from Warsaw, or in lat. $52^\circ 37' 39''$, and long. $20^\circ 30' 59''$ E. of Greenwich. The principal instrument is an equatorially-mounted refractor by Steinheil, of 6.4 inches aperture, to which are attached filar and other micrometers, and a spectroscope. Acting upon the advice of Dr. Vogel of Potsdam, Dr. Jedrzejewicz has the intention of devoting his time mainly to the measurement of double-stars, selecting such objects as are well within the power of his telescope; indeed, he has already made a considerable advance in this direction, having secured 860 complete observations of 170 double or compound stars, the result of some 8,500 separate measures, and with the view to enable astronomers to judge of the amount of confidence to be placed in the observations that may be published from Plóńsk, he has given a comparison of his measures of a number of stars, which do not exhibit change, with those of Struve and others, and the comparison will tend to induce reliance upon his work. One remark we may make which bears generally upon the selection of objects for measurement with such an aperture as Dr. Jedrzejewicz possesses: it appears to have been too much the custom with the generality of observers who devote themselves to double-star astronomy, to accumulate a large number of measures of well-known, we may almost say, historical binaries, to the neglect of other objects, equally within the scope of their instruments, and equally deserving of attention. A carefully-considered list of stars is an essential in the actual state of this branch of the science, if the labours of the observer are to possess their utmost attainable value, in the future. The numerous discoveries of Mr. Burnham in particular confirm us in this view; his various lists exhibit many stars which it is highly desirable to keep under observation, and which do not yield in point of interest to other better-known binaries.

GEOGRAPHICAL NOTES

THE Japan papers report, with expressions of great regret, the loss, of which we have already had news by telegraph, of the *A. E. Nordenskjöld*, the little vessel